

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (SUMMARY)

Project Information:

Lead Agency:	FOOTHILL TRANSIT
Project Name:	Foothill Transit Line 280 Expansion and Electrification
Project Type: <i>See Attachment A</i>	A2: Expand/Enhance transit service
Description of Project (Short):	Foothill Transit's Line 280 Expansion and Electrification project will extend and electrify Line 280, while extending service hours, increasing the frequency of service, and increase the capacity, all with zero emission electric buses.
Project Location:	San Gabriel Valley
Project Start Date (anticipated):	Jan-17
Project End Date (anticipated):	On-going

Funding Information:

Funding Year:	FY 2015-16
Requested Amount of PUC 99313:	
Requested Amount of PUC 99314:	\$512,738
Total LCTOP Funding:	\$512,738
Total Project Cost:	\$2,037,272 / year

Project Benefits:

Greenhouse Gas Benefits (off of worksheet)

Estimated GHG Reduction:	26,110.92 MTCO ₂ e
Project Life:	Buses-12 years , Operation of Line 280-Continuous
Estimated Total GHG Reduction:	.0509 MTCO ₂ E

Disadvantaged Communities (DAC) Benefits:

Does your service area have a DAC?	YES
Does the Project Benefit a DAC?	YES
Identify the DAC Census Tracts?	6037404301 6037408006 6037404302 6037408133 6037404504 6037408138 6037406200 6037408202 6037408623 6037404600
Identify Specific DAC Benefit Criteria? <i>See Attachment B</i>	LCTP 1D: Project provides greater mobility and increased access to clean transportation for disadvantaged community residents by placing services in a disadvantaged community, including ride-sharing, car-sharing, or other advanced technology mobility options.
Qualitative Description of DAC Benefit?	Bus line runs through several DAC areas. Charging station and light rail transfer point is located in DAC. Buses are domiciled in a DAC.
Describe the DAC Need Project Addresses?	SAN GABRIEL VALLEY
Total GGRF \$ Allocated to DAC	\$512,738

Co-benefit

Critical Air Pollution Reduction:	3,800 kg of NO _x annually
VMT Reduction:	3,007,958 VMT reduced annually
Ridership Increase	15,519 riders
Fuel Ues Reduction:	104,000 gallons of CNG
Energy Use Reduction:	418,600 CNG vehicle miles


Low Carbon Transit Operations Program (LCTOP)**PROJECT DESCRIPTION AND ALLOCATION REQUEST (ALLOCATION)**

Regional Entity:	
Project Lead: FOOTHILL TRANSIT	County: LOS ANGELES
Project Title: Foothill Transit Line 280 Expansion and Electrification	

Project Lead:

I

certify the scope, cost, schedule, and benefits as identified in the attached Allocation Request (Request) and attachments are true and accurate and demonstrate a fully funded operable project. I understand the Request is subject to any additional restrictions, limitations or conditions that may be enacted by the State Legislature, including the State's budgetary process and/or auction receipts. In the event the project cannot be completed as originally scoped, scheduled and estimated, or the project is terminated prior to completion, project lead shall, at its own expense, ensure that the project is in a safe and operable condition for the public. I understand this project will be monitored by the California Department of Transportation - Division of Rail and Mass Transportation.

Name:	MICHELLE CALDWELL	
Signature:		
Title:	DIRECTOR OF FINANCE AND TREASURER	
Agency:	FOOTHILL TRANSIT	
Date:	1/29/2016	Amount: \$512,738

Contributing Sponsor(s):

*If this project includes funding from more than one project sponsor, the project lead above becomes the "recipient agency" and the additional contributing project sponsor(s) must also sign and state the amount and type of LCTOP funds (PUC Sections 99313 and 99314) contribution. Sign below or attach a separate officially signed letter providing that information. If there is more than one contributing sponsor, please submit additional page, or a letter from the additional contributors.

Name:		
Signature:		
Title:		
Agency:		
Date:		Amount:

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (FUNDING)

	<i>LCTOP Allocation</i>	<i>15/16</i>	<i>16/17</i>	<i>17/18</i>
Request Amount per PUC 99313:		\$0	\$0	\$0
Request Amount per PUC 99314:		\$512,738	\$0	\$0
Total Project Allocation Request:		\$512,738	\$0	\$0
Project Title:	Foothill Transit Line 280 Expansion and Electrification			
Project Location/Address:	SAN GABRIEL VALLEY			

Table 1: Project Lead Information

Agency Name: <u>FOOTHILL TRANSIT</u> Contact Person: <u>RUBEN CERVANTES</u> Contact Phone #: <u>626-931-7231</u> Email Address: <u>rcervantes@foothilltransit.org</u> Address: <u>100 S Vincent AVE STE 200</u> <u>West Covina, CA 91790</u>	Legislative District Numbers Assembly: _____ Senate: _____ Congressional: _____ Amount: _____ PUC Funds Type: _____ \$ _____ \$ _____
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Table 2: Contributing Sponsor Information

Name: _____	Amount :	PUC Fund Type:
Contact: _____	\$ _____	
Contact Phone #: _____	\$ _____	
Email Address: _____		
Address: _____		
 <i>Other Contributing Sponsors: (Attach sheet with contact information)</i>		
Name: _____	Amount:	PUC Fund Type:
Name: _____	\$ _____	
Name: _____	\$ _____	
Name: _____	\$ _____	
TOTAL \$0		

(*Contributing project sponsors provide signed letters of verification as to amount and eligibility or sign cover page)

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (PROJECT)

Table 3: Type of Project

See Attachment A for category of project (example: Category 1A Implement new or expanded transit service (for new routes or expansion of existing routes)).

Operations Projects				Capital Projects			
	A1	X	Ai		B1		Bi
X	A2		Aii		B2		Bii
	A3		Aiii		B3		Bii
	A4		Aiv		B4		
	A5						

Table 4: Project Summary

a) Project Description - Describe the project in your own words, using comprehensive overall project description regarding improvements to be made, increased level of service and performance goals.

Foothill Transit is expanding its recognized industry-leading zero emissions electric bus program with the deployment of 13 new extended range, all-electric, zero emissions Proterra transit buses, which will electrify and extend Line 280 (*Attachment A-Line 280 Route Map*).

Foothill Transit requests FY2015-16 LCTOP funds of \$512,738 for operational assistance in the extension and electrification of Line 280, which will extend the transit route, extend service hours, increase the frequency of service, and increase the capacity, all with zero emission electric buses. These operating funds will leverage Foothill Transits FY2014-15 LCTOP funds of \$167,914 which will soon be used for the purchase of electric charging stations at our Azusa Intermodal Transit Center, which will assist in the electrification of Line 280. These charging stations were crucial, as they help Foothill Transit reach its goal of creating a network of electric charging stations to support the growth of its zero emission fleet.

The new extended range electric buses will replace retirement eligible CNG buses with zero-emissions buses, and increase frequency from 20 to 15 minutes on Line 280. This will reduce travel times, increase ridership, and reduce greenhouse gas emissions, all which are important elements of Foothill Transit's service profile.

Line 280 is a corridor between the new stop at the Azusa Intermodal Transit Center and the Puente Hills Transit Center. Line 280 is the fifth most heavily ridden line in the Foothill Transit system, experiencing nearly 1 million boardings in FY 2014. The line services many census blocks where more than 40% of the residents do not have access to a car. The low-income population (those that make less than 150% of the federal poverty threshold) is 35% of the population served by the line, which exceeds the service area average by 10%.

The northern terminus of Line 280, the new Azusa Intermodal Transit Center, is the future home of the Los Angeles Metro Gold Line Azusa stop. Set to open in 2016, the Transit Center will connect Azusa to the Los Angeles region. The southern terminus, the Puente Hills Mall, is an access point to one of the densest areas for employment in Foothill Transit's service area. In close proximity to the mall are many large shopping centers, groceries, and retail. It serves as a major transit center giving riders the opportunity to transfer to many important lines.

b) Project Location - Describe the location of the project. Also provide an 8 1/2" X 11" project site map that shows the transit service area and project location. Use link to CalEPA website for information, <http://www.calepa.ca.gov/EnvJustice/GHGInvest/default.htm>

Line 280 is a corridor located in the San Gabriel Valley between the new stop at the Azusa Intermodal Transit Center and the Puente Hills Transit Center. Line 280 is the fifth most heavily ridden line in the Foothill Transit system, experiencing nearly 1 million boardings in FY 2014. The line services many census blocks where more than 40% of the residents do not have access to a car. The low-income population (those that make less than 150% of the federal poverty threshold) is 35% of the population served by the line, which exceeds the service area average by 10% (See Attachment B-DAC Map).

c) Project Life - For capital projects, state the Useful Life of the Project. For operations project state the number of months service will operate.

Capital:

Operations: Service will be continuous as it is now part of Foothill Transit's new service change.

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (BENEFITS/OUTCOMES)

Table 5: Description of Major Benefits/Outcomes

a) Greenhouse Gas Reduction - Describe how this project will reduce greenhouse gases and any assumptions or data that support this description. For example, "The expanded transit service will reduce VMT and greenhouse gas emissions by replacing auto trips with transit trips. Initial estimates indicate that the expansion could add 50 commuter bus riders per day to replace an average auto trip of 10 miles each way." If available, please provide the expected amount of VMT reductions and greenhouse gas reductions.

VTM Reduction

According to ARB's LCTOP Calculation Tool, this project displaces 3,650,445 automobile VMT each year. The Proterra Catalyst XR buses that will be running on Line 280 are zero emission electric buses which will emit zero greenhouse gases or criteria pollutants.

Criteria Pollutants

According to EPA MOVES2013 emission model, a MY 2005 CNG bus emits 9.1 grams of NOx per vehicle mile. By replacing these CNG buses with Zero Emission Electric Vehicles, we're taking 489,100 CNG vehicle miles off the road. As a result, the electric buses will eliminate 3,800 kg of NOx every year.

Energy Use Reduction

Our CNG buses have an efficiency of roughly 4.0 miles per gallon equivalent. By replacing these CNG buses with Zero Emission Electric Vehicles, we're taking 489,100 CNG vehicle miles off the road. This is equivalent to 104,000 gallons of CNG displaced each year.

Foothill Transit is also committed to meeting California clean transit goals. The state requires Californians to reduce greenhouse gases to 1990 levels by 2020 and to maintain and continue reductions beyond 2020. Additionally, California requires investments in, and for the benefit of, disadvantaged communities to increase transit ridership and reduce greenhouse gas emissions. This project, a fully electrified corridor is a key part of the State, and Educational Facilities vision for environmental sustainability and economic growth. As demonstrated through several related efforts, the electrification of Line 280 draws together a variation of ongoing initiatives targeted at advancing the economic health and vitality of the service area.

b) Increased Mode Share - Describe how this project will directly increase mode share.

The Line 280 Extension and Electrification project will expand service and increase ridership in three ways:

- 1) **Increase the frequency of the line:** Under the current operation plan, service increases from 103 to 125 trips per weekday. Service will increase from 30 minute headways (two buses per hour) to 20 minute headways (three buses per hour), Resulting in an additional 28 vehicle-hours of service per day, an increase of 28%.
- 2) **Connect to new light rail station and park & ride:** At the new Azusa Intermodal Transit Center, riders can transfer to the regional LA Metro light rail and can leave their cars at our new 4-story parking structure with a capacity 550 vehicles. Our analysis shows that the new Azusa Intermodal Transit Center will boost Line 280 ridership by 15,519 riders, or 21 percent.
- 3) **Increase the length of the line:** The line will be extended to serve the new Azusa Intermodal Transit Center. In combination with the frequency increase, the daily vehicle miles traveled increases by 26 percent.

c) Disadvantaged Communities (DAC) Project Criteria

See Attachment B for DAC Criteria to Evaluate Projects (example: Category 1B Project provides transit incentives to residents with a physical address in a disadvantaged community (e.g., vouchers, reduced fares, transit passes).

Low Carbon Transportation Projects

	1A		2A
	1B		2B
	1C	X	2C
X	1D		

Transit Projects

X	1A	X	1G		2E
	1B		1H	X	2F
X	1C	X	2A		2G
	1D		2B		2H

X

1E

1F

X

2C

2D

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2I

d) Disadvantaged Communities (DAC) (if applicable*) -Describe how this project will directly benefit the DAC(s) within your service area in your own words. **For agencies whose service area includes disadvantaged communities, at least 50 percent of the total moneys received shall be expended on projects that will benefit disadvantaged communities.**

This project benefits disadvantaged communities (DACs) in several ways:

- 1) Line 280 runs within several DACs within our service territory, including the city of La Puente and the City of Azusa.
- 2) Line 280 is a corridor between the new stop at the Azusa Intermodal Transit Center and the Puente Hills Transit Center. Line 280 services many census blocks where more than 40% of the residents do not have access to a car. The low-income population (those that make less than 150% of the federal poverty threshold) is 35% of the population served by the line, which exceeds the service area average by 10%. The northern terminus of Line 280, the new Azusa Intermodal Transit Center, is the future home of the Los Angeles Metro Gold Line Azusa stop. The Transit Center will connect Azusa to the Los Angeles region. The southern terminus, the Puente Hills Mall, is an access point to one of the densest areas for employment in Foothill Transit's service area. In close proximity to the mall are many large shopping, groceries, and retail, and serves as a major transit center giving riders the opportunity to transfer to many important lines.
- 3) The Arcadia Operations Facilities, where the buses dwell at night, is within a DAC. This project eliminates point source emissions at this facility (*See Attachment B-DAC Map*).

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (BENEFITS/OUTCOMES)

Table 5: Description of Major Benefits/Outcomes

e) Co-Benefits - Check all additional Benefits/Outcomes.

<input type="checkbox"/> Improved Safety	<input type="checkbox"/> Coordination with Educational Institutions
<input checked="" type="checkbox"/> Improved Public Health	<input type="checkbox"/> College/University <input type="checkbox"/> Grades K-12
<input checked="" type="checkbox"/> Reduced Operating/Maintenance Cost	<input type="checkbox"/> Promotes Active Transportation (walking, biking)
<input checked="" type="checkbox"/> Increase System Reliability	<input checked="" type="checkbox"/> Promotes integration with other modes of transportation
<input type="checkbox"/> Other Benefits (describe below)	

f) Co-Benefits - Describe benefits indicated above in d) and any other benefits not listed.

**LCTOP PROJECT DESCRIPTION AND
ALLOCATION REQUEST
(OPERATIONS DESCRIPTION)**

**TABLE 7: OPERATIONS PROJECT
DESCRIPTION**

FOOTHILL GOLD LINE PHASE 2A

State of California - Department of Transportation
Division of Rail and Mass Transportation
Low Carbon Transit Operations Program (LCTOP)
Effective 11/15



Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (OPERATIONS DESCRIPTION)

Table 7: Operations Project Description

a) Describe the operating plan for this system.

The Operating Plan for the Foothill Gold Line Phase 2A extension will include trains operating seven (7) days a week. The span of service will be 5am to midnight on Sunday through Thursdays, and until 2am on Friday and Saturday nights. Two-car train consists will be operated the majority of the time.

The extension is 11.1 miles in length, includes 6 new stations, and will have an 18-minute one-way travel time. The project will expand the Gold Line from 19.4 miles and serving 21 stations to 30.7 miles and serving 27 stations. The existing portion of the line will retain a weekday peak level of service consisting of trains on a 6-minute headway with 2-car train consists. Half of trains in service will 'turnback' in Pasadena at the Sierra Madre Villa Station, which is the beginning of the project extension to Azusa.

During weekday off-peak times, service will consist of trains running every 10-minutes. On weekends, service will consist of trains every 7.5 minutes, except during evening and night hours.

Annual vehicle revenue service hours are forecasted to be approximately 42,000.

b) Describe the fare structure for this system.

The base fare is a 1-ride trip costing \$1.75. This includes a free transfer to other lines for up to 2 hours from the time of boarding of the first trip. Reduced fares are provided for Seniors/Disabled persons and for Students K-12 at \$0.75(peak)/\$0.35(off-peak) and \$1 respectfully.

One-Day, 7-Day and 30-Day Passes are provided at \$7, \$25 and \$100 price points respectively. Seniors/Disabled riders can purchase 1-day and 30-Day passes for \$2.50 and \$20 respectively. College/Vocational Students and K-12 Students can purchase 30-Day Passes for \$43 and \$24 respectively.

c) Describe the assumptions and process that were used to develop the ridership projections shown in the request.

Our ridership impacts were arrived at by conducting a sensitivity run of the Los Angeles County Metropolitan Authority Short Range Transportation Plan model for new service expansion. The Average Daily Boardings for the Foothill Gold Line Extension Phase 2A is estimated to increase by 13,455.

d) Describe the assumptions and process for how the operating cost projections were developed.

The operating cost projection pivots off the forecast to provide 42,000 vehicle revenue service hours, and, the hourly unit cost of \$360.18 observed in the FY2015 LACMTA budget. The anticipated additional cost is expected to be approximately \$15,127,560. This does not reflect any cost increases due to inflation.

LCTOP PROJECT DESCRIPTION AND ALLOCATION REQUEST (OPERATIONS DESCRIPTION)

TABLE 7: OPERATIONS PROJECT DESCRIPTION

EXPO II LINE

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (OPERATIONS DESCRIPTION)

Table 7: Operations Project Description

a) Describe the operating plan for this system.

The Operating Plan for the Exposition Phase 2 extension will include trains operating seven (7) days a week. The span of service will be 5am to midnight on Sunday through Thursdays, and until 2am on Friday and Saturday nights. Three-car train consists will be operated the majority of the time.

The extension is 6.6 miles in length, includes 6 new stations, and will have an 17-minute one-way travel time. The project will expand the Expo Line from 8.7 miles and serving 12 stations to 15.3 miles and serving 19 stations. Upon opening of Phase 2, the Exposition Line weekday peak period service level will transition from a 12-minute headway with 3-car trains to 6-minute headways and 3-car trains. During weekday off-peak times and weekends, service will consist of trains running every 12-minutes, except during evening and night hours.

Annual vehicle revenue service hours are forecasted to be approximately 117,000 hours for the Expo Phase 2 Extension.

b) Describe the fare structure for this system.

The base fare is a 1-ride trip costing \$1.75. This includes a free transfer to other lines for up to 2 hours from the time of boarding of the first trip. Reduced fares are provided for Seniors/Disabled persons and for Students K-12 at \$0.75(peak)/\$0.35(off-peak) and \$1 respectfully.

One-Day, 7-Day and 30-Day Passes are provided at \$7, \$25 and \$100 price points respectively. Seniors/Disabled riders can purchase 1-day and 30-Day passes for \$2.50 and \$20 respectively. College/Vocational Students and K-12 Students can purchase 30-Day Passes for \$43 and \$24 respectively.

c) Describe the assumptions and process that were used to develop the ridership projections shown in the request.

Ridership impacts were arrived at by conducting a sensitivity run of the Metro Travel Demand Model. The Average Daily new ridership for the Exposition Line Phase 2 is estimated to increase by 36,412 by the year 2030.

Present day average daily ridership of the Expo Line is 30,664. In FY20, which is prior to the implementation of the Regional Connector project, average daily ridership of the Expo Line from Los Angeles to Santa Monica is forecasted to be 69,000. By 2030, the entirety of the line from Santa Monica to East Los Angeles, is forecasted to surpass 120,000 daily boardings.

d) Describe the assumptions and process for how the operating cost projections were developed.

The operating cost projection pivots off the forecast to provide 42,688 vehicle revenue service hours, and, the hourly unit cost of \$360.08 observed in the FY2015 LACMTA budget. The anticipated additional cost is expected to be approximately \$15,371,095. This does not reflect any cost increases due to inflation

In addition to the GHG, ridership, and DAC benefits above, there are multiple co-benefits, listed below.

VMT Reduction

According to ARB's LCTOP Calculation Tool, this project displaces 3,650,445 automobile VMT each year.

Criteria Pollutants

According to EPA MOVES2013 emission model, a MY 2005 CNG bus emits 9.1 grams of NOx per vehicle mile. By replacing these CNG buses with Zero Emission Electric Vehicles, we're taking 489,100 CNG vehicle miles off the road. As a result, the electric buses will eliminate 3,800 kg of NOx every year.

Energy Use Reduction

Our CNG buses have an efficiency of roughly 4.0 miles per gallon equivalent. By replacing these CNG buses with Zero Emission Electric Vehicles, we're taking 489,100 CNG vehicle miles off the road. This is equivalent to 104,000 gallons of CNG displaced each year.

Reduced Operating Cost

An internal analysis of Foothill Transit's current fleet shows that preventive maintenance on the electric buses costs 9 cents per mile, approximately 25 percent less than preventive maintenance on the CNG buses. This is due to the elimination of consumables like engine oil, filters, and similar items. In total, by taking 489,100 CNG vehicle miles off the road, we save \$14,673 per year in preventive maintenance costs. Note, this does not include variances or savings in unplanned maintenance.

Table 6: Project Schedule

Capital Projects	
Begin Construction Phase (Contract Award)	
End Construction Phase (Contract Acceptance)	
Begin Vehicle/Equipment Order (Contract Award)	
End Vehicle/Equipment Order (Contract Acceptance)	
Begin Closeout Phase	
End Closeout Phase	
Operations Projects	
Begin expanded/enhanced transit services	Dec-16
End expanded/enhanced transit services	Continuous
Begin Closeout Phase	
End Closeout Phase	
START DATE FOR LCTOP FUNDED PHASES MAY NOT PROCEED PROJECT APPROVAL LETTER.	

Pre-construction costs (e.g design, environmental and right-a-way) are not eligible to be funded by LCTOP funds, they must be funded by other sources.

Low Carbon Transit Operations Program (LCTOP)

PROJECT DESCRIPTION AND ALLOCATION REQUEST (OPERATIONS DESCRIPTION)

Table 7: Operations Project Description

a) Describe the operating plan for this system.

The Proterra Catalyst XR buses are extended-range electric buses that will run line 280 to help expand and electrify the line. The electric buses combine a high-capacity battery pack with on-route charging, to enable all-day operation and increased range between charges. This enables the deployment of the buses on a wide variety of routes that would normally not be compatible with a typical fast-charge bus, such as the first generation of electric buses. These buses operate through a unique combination of overnight charging at the maintenance facility, and on-route charging during the day.

Foothill Transit's Catalyst XRs have been configured to meet the agency's operating needs based on the profile of Line 280 and the planned schedule of operation. Foothill Transit buses will be equipped with 250 kWh of Lithium Nickel Manganese Cobalt Oxide (NMC) rechargeable batteries, providing 100 miles of range on Line 280. The buses will "top off" at the newly installed on-route charging station placed at the Azusa Intermodal Transit Center, enabling the buses to provide service all-day. Based on the current route schedule, the buses will operate up to 19 hours each day, traveling 170 miles daily.

The buses will charge at 130 kW, faster than typical depot charging, but less than a fast-charge systems using overhead conductive charging. The overhead charging is convenient, safe, and compatible with Foothill Transit's operation, as the bus and charger automatically couple when the bus approaches the station. Conductive charging (when the charger is physically connected to the bus) is much more efficient than wireless inductive charging, which reduces energy use, saves money, and further reduces greenhouse gas emissions.

Under the current operation plan, service increases from 103 to 125 trips per weekday. Service will increase from 30 minute headways (two buses per hour) to 20 minute headways (three buses per hour), Resulting in an additional 28 vehicle-hours of service per day, an increase of 28%. These buses will dwell at our Arcadia Maintenance and Operations building.

In addition, these chargers will support the deployment of Foothill Transit's existing fleet of 15 first generation Proterra BE35 electric buses. These vehicles, currently operating out of the Pomona facility, can currently only be charged at the Pomona Transit Center, which is too distant to allow any of those buses to serve routes operating out of the Arcadia facility.

b) Describe the fare structure for this system.

Foothill Transit has three levels of fares, which are Local, SilverStreak, and Express. Line 280 is in the category of local fare level which has a base fare of \$1.25 for Adults and Students, and \$0.50 for Senior/Disabled. Foothill Transit offers 31-day pass on our local fare set and they are as follow: \$70.00 for adults, \$33.00 for students, and \$22.00 for senior/disabled. Local fare set accepts transfers (which can be bought upon boarding the first bus with paying for a valid base fare for \$0.50 – Adults and \$0.25 – Senior/Disabled) as a valid fare. Regional passes are also accepted on the local fare set as well as special program passes.

c) Describe the assumptions and process that were used to develop the ridership projections shown in the request.

As of June 2015, Line 280 had a ridership figure of 72,656 riders, with a total of 103 trips. That's a total of 705.40 riders per trip. With the new extension of line 280 to the new Azusa Intermodal Transit Center is projected to increase the ridership on line 280 greatly. Line 280 will be increased to 125 trips with the increase of frequency of the line. Foothill Transit's assumption is that the same average of ridership per trip will continue with the added trip, and the new projection of 125 trips would yield an average of 88,175 riders annually.

d) Describe the assumptions and process for how the operating cost projections were developed.

An internal analysis of Foothill Transit's current fleet shows that preventive maintenance on the electric buses costs **9 cents per mile**, approximately 25 percent less than preventive maintenance on the CNG buses. This is due to the elimination of consumables like engine oil, filters, and similar items. The new service changes will extend line 280 to the Azusa Intermodal Transit Center, and change our service frequency from 30 to 20 minutes will demand an average of **1,340 Daily Miles** on Line 280. This line runs 365 days a year, giving us an estimated total of **489,100 Daily miles a year**. Line 280 is operated by Transdev Services out of our Arcadia Operations and Maintenance facility. Their rate to operate Line 280 according to our current contract is **\$3.83 per Revenue Mile**.

Projected preventative maintenance costs per year, on electric buses servicing Line 280:

$.09 \times 489,100 = \$44,019$ -Note, this does not include variances or savings in unplanned maintenance.

Projected service cost to run Line 280 with full extension and electrification:

$\$3.83 \times 489,100 = \$1,873,253$

Charging Electricity Costs:

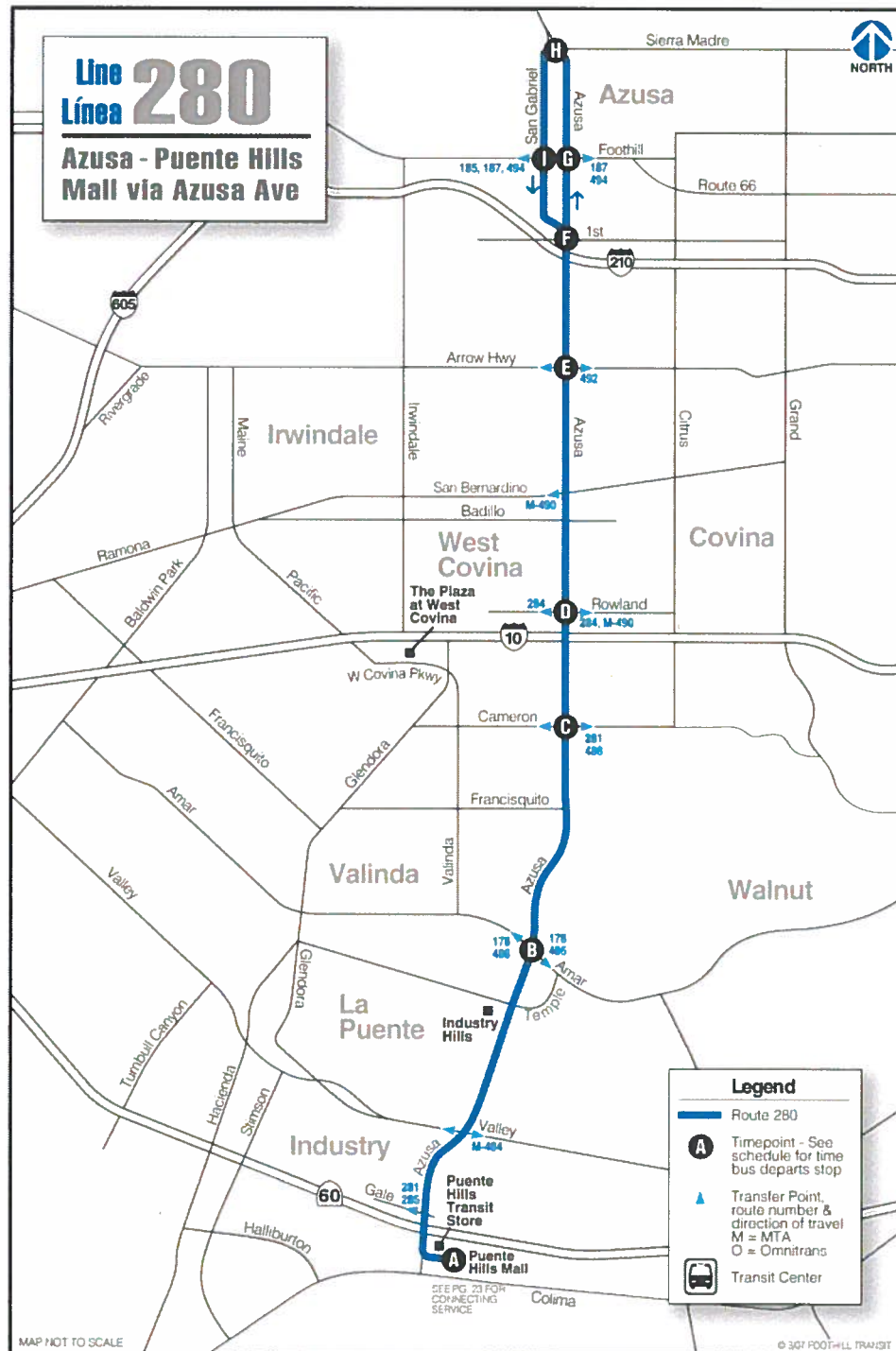
Current electricity charges on our current electric bus fleet on other routes averages about \$10,000/Month.

$\$10,000 \times 12 = \$120,000$

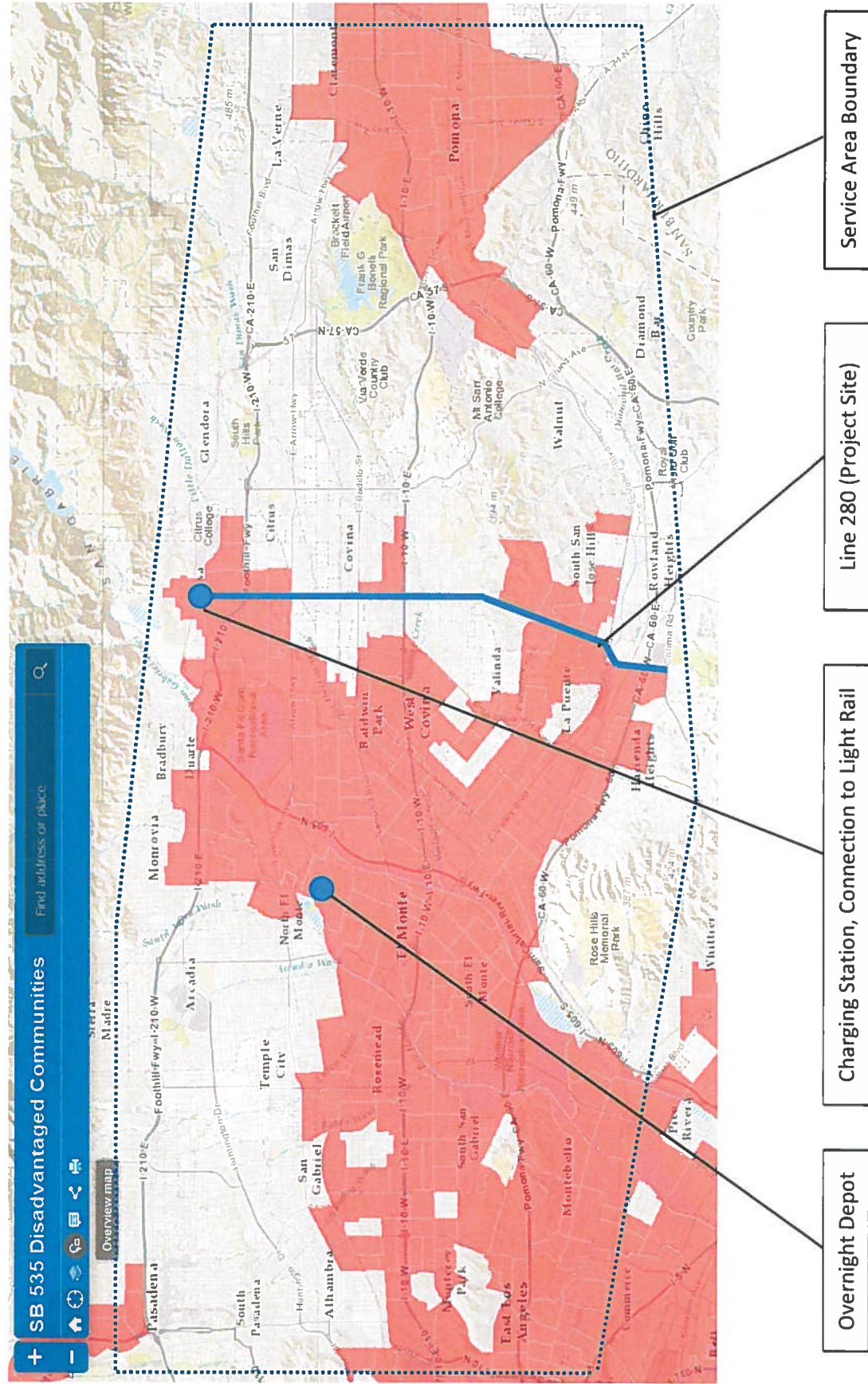
Total Operating Costs for Line 280: \$2,037,272 / Year

Diagrams/ Maps

Route diagram of Line 280




Showing Project Line, Charging Station, Overnight Depot and Manufacturing Plan



Low Carbon Transit Operations Program TOTAL PROJECT COST AND FUNDING PLAN

The following Funding Plan has been reviewed and approved by the undersigned. It includes a complete list of funds for this project and is the total cost of the project, including LCTOP funds.

Person preparing this form (please type or print) Ruben Cervantes	Phone: 626-931-7231	Date: 01/29/2016
Approval Authority: Sign and date 01/29/2016 	Typed name and phone number: Michelle Caldwell 626-931-7254	

Shaded fields are automatically calculated. Please do not fill these fields.

Proposed Total Project Cost								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Project Total
PA&ED	0	0	0	0	0	0	0	0
PS&E	0	0	0	0	0	0	0	0
R/W	0	0	0	0	0	0	0	0
CON	0	0	0	0	0	0	0	0
Veh/Equip Purchase	0	0	0	0	0	0	0	0
Operations/Other	0	2,037,272	0	0	0	0	0	2,037,272
TOTAL	0	2,037,272	0	0	0	0	0	2,037,272

Low Carbon Transit Operations Program (LCTOP)								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other		512,738						512,738
TOTAL	0	512,738	0	0	0	0	0	512,738

Funding Source: Prop A 40% - Discretionary								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other		1,524,534						1,524,534
TOTAL	0	1,524,534	0	0	0	0	0	1,524,534

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0

Low Carbon Transit Operations Program TOTAL PROJECT COST AND FUNDING PLAN

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0

Funding Source:								
Component	Prior	FY 15-16	FY	FY	FY	FY	FY	Total
PA&ED								0
PS&E								0
R/W								0
CON								0
Veh/Equip Purchase								0
Operations/Other								0
TOTAL	0	0	0	0	0	0	0	0



The California Air Resources Board (ARB) is responsible for providing the quantification methodology to estimate greenhouse gas (GHG) emission reductions from projects receiving monies from the Greenhouse Gas Reduction Fund (GGRF).

This GHG emission reduction calculator accompanies the quantification methodology for the fiscal year (FY) 2015-16 GGRF Low Carbon Transit and Operations Program (LCTOP) available at: <http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/fnalictopqm.pdf>

Applicants must use this calculator to estimate the GHG reductions associated with the LCTOP projects. Refer to the quantification methodology document for background, step by step detailed instructions and examples. To use this calculator, follow these steps:

Step 1 Identify the LCTOP proposed project type(s). The applicant must select at least one eligible project type from Tables 1 or 2 and may select additional project types from Tables 3 or 4.

Step 2 Determine the inputs needed: The applicant will use Tables 5 and 6 to determine the required project details needed for input into this calculator tool for the applicable project type selected in Step 1.

Step 3 Estimate GHG emission reductions: The applicant will enter the project details identified in Step 2 into this calculator tool to calculate the GHG emission reductions of the proposed project.

Read Me Tab (this page):

Enter the Project Name, Project ID and the contact information for person who can answer project specific questions from staff reviewers on the quantification calculations. The Project ID is assigned by Caltrans. This file will be submitted with other documentation requirements. Please use the following file naming convention: "[Project ID]_[Project Name]" not to exceed 20 characters. For example, if the application ID is "1-1C_001," the project name is "Transit BRT," and the file is the input file, the file name may be "1-1C_001Transit BRT." Project names may be abbreviated.

Project Name:	Foothill Transit Line 280 Expansion & Electrification
Project ID:	Assigned by Caltrans
Contact Name:	Ruben Cervantes
Contact Phone Number:	626-931-7231
Contact Email:	rcervantes@foothilltransit.org
Date Completed:	2/1/2016

Inputs Tab:

Headers in red indicate input needed by the project applicant. For each row, applicants must work from left to right and enter all relevant data. Some cells may not be applicable to the project.

These cells will turn black and be locked based on inputs. Applicants should use as many rows as necessary to characterize all relevant features of the proposed project. Definitions are provided in the definitions tab, including how to determine Year 1, Year F, and adjustment factors. Inputs must be substantiated in the documentation provided to ARB; see Section C. Documentation of the quantification methodology.

Submit documentation: Save file for submittal. See Section C. Documentation of the quantification methodology for additional documentation requirements.

For more information on ARB's efforts to support implementation of GGRF investments, see: www.arb.ca.gov/auctionproceeds
Questions on this document should be forwarded to GGRFProgram@arb.ca.gov
Questions on the LCTOP program should be forwarded to LCTOPcomments@dot.ca.gov



California Environmental Protection Agency

California Air Resources Board

**California Air Resources Board (ARB)
Greenhouse Gas Emission Reduction Calculator for the
California Department of Transportation (Caltrans)
Low Carbon Transit Operations Program (LCTOP)
Greenhouse Gas Reduction Fund
Fiscal Year 2015-16**

Project Name:	Foothill Transit Line 280 Expansion & Electrification
Project ID:	Assigned by Caltrans

Inputs in **RED** must be filled out

Results	GHG Emissions (MTCO ₂ e)	Description
Net GHG Benefits	26,110.92	Total GHG Emission Reductions (MTCO ₂ e)
LCTOP Funds Requested (\$)	512,738.00	Funds requested per State Controller's Office Eligible list for FY 2015-16
Total LCTOP Funds Requested (\$)	512,738.00	Includes all LCTOP allocations the applicant intends to utilize (up to three FY allocations including FY 2015-16) for the proposed project. Use the State Controller's Office Eligible list for FY 2015-16 allocation funding amounts to estimate the subsequent funding allocations.
Total CGRF Funds Requested (\$)	512,738.00	Includes the Total LCTOP fund requested and any other CGRF Program monies
Total GHG Emission Reductions /Total CGRF Funds Requested (\$)	0.0509	The metric to be reported in the application.



California Air Resources Board (ARB)
Greenhouse Gas Emission Reduction Calculator for the
California Department of Transportation (Caltrans)
Low Carbon Transit Operations Program (LCTOP)
Greenhouse Gas Reduction Fund
Fiscal Year 2015-16

Inputs		Description
Project Details	Eligible Project Type	Eligible projects fall into two Eligible Project types: "New/Expanded Service" and "Expanded Transit Facilities or Service Enhancements". See quantification methodology to select an eligible project and determine which project type to select.
	Transit Type	Select the transit type (e.g. bus (local bus), train, multi-modal facility) that the project will service. Select Train for expanded train station or Bus (local bus) for new bus stops.
	County	Select the county where the majority of the service occurs.
	Year 1 (Yr1)	Select the first year of service, or year that facility construction will be completed.
	Year F (YrF)	Select the final year that the service is funded or of the facility useful life.
	Yr1 Annual Ridership	The estimated annual ridership in Yr1
	YrF Annual Ridership	The estimated annual ridership in YrF
Displaced Auto Details	Adjustment (A)*	Adjustment factor to account for transit dependency Use: documented project specific data or system average developed from a recent, statistically valid survey or default Default: 0.5 for local bus service or 0.83 for long distance commuter service
	Length (L)*	Length (miles) of average auto trip reduced Use: value based on specific project or system average reported to the National Transit Database (consult Caltrans for assistance) Adjustment factor to account for auto trips used to access transit service Use: value based on project specific data or system average developed from a recent, statistically valid survey or default Default: 0.1 for local bus service or 0.8 for long distance commuter service
	Adjustment (AA)*	Length (miles) of average trip for auto access to transit Use: value based on specific project data or default Default: 2 miles for local bus or 5 miles for long distance commuter service
	Length (LL)*	Annual Average VMT Displaced
	Annual Average VMT Displaced	The estimated annual average auto VMT displaced by the project
New/Expanded Vehicle Details	Fuel Type	Select the fuel type of the vehicle proposed for service (e.g. Electric/BEV or PHEV)
	Engine MY Annual VMT or Units of Fuel	Select the engine model year of the new/expanded vehicle proposed for service Enter the annual vehicle miles traveled or units of fuel (e.g. gallons of diesel) of the proposed service. Units of fuel needed is only applicable for ferry service.
Old Service Vehicle or Displaced Fuel Details	Useful life	Input 10 years for advance technologies (i.e., electric, hydrogen fuel cell buses); for others, use Federal Transit Administration guidance available here www.fra.dot.gov/documents/CS_S010_1D_Finalpub.pdf . Documentation of useful life is required to be included with the application.
	Additional Project	Additional projects fall into two Additional Project types: "Vehicle Improvements" and "Fuel Savings". See quantification methodology to select an eligible project and determine which project type to select.
	Fuel Type	Select the fuel type of the old vehicle proposed for improvement, or of the "Fuel Savings" project (e.g. Diesel)
	Engine MY Annual VMT or Units of Fuel	Select the engine model year of the old vehicle proposed for improvement Enter the annual VMT of the old service vehicle being replaced by a new vehicle (e.g., 1,000 miles) or for ferry service enter units of fuel (gallons of diesel) of the proposed service. For Fuel Savings projects enter the units of fuel displaced (e.g., 12,000 gallons of diesel).
Net GHG Benefits	Total GHG Emission Reductions (MTCO2e) FY 2015-16 LCTOP	The estimated net GHG benefits from the proposed project.
Funds Requested	Funds Requested (\$)	Funds requested per State Controller's Office Eligible list for FY 2015-16
	Total LCTOP Funds Requested (\$)	Includes all LCTOP allocations the applicant intends to utilize (up to three FY allocations including FY 2015-16) for the proposed project. Use the State Controller's Office Eligible list for FY 2015-16 allocation funding amount to estimate the subsequent funding allocations.
	Total GCRF Funds Requested (\$)	Includes the Total LCTOP fund requested and any other GCRF Program monies

LCTOP Application

Documentation of inputs used in LCTOP GHG Calculator

Project Description

Foothill Transit's Line 280 Expansion and Electrification project will extend and electrify Line 280, while extending service hours, increasing the frequency of service, and increase the capacity, all with zero emission electric buses.

Support for Inputs in Calculation Tool

Listed here are the values used as input into the LCTOP application tool, along with supporting information.

Project Details

Eligible Project Type

Eligible Project Type: New / Expanded Service

As shown in the project description, this project expands service by extending the length of the route and increasing frequency.

Transit Service Type: Bus (local bus)

As shown in the project description, vehicles in this project are local buses.

County: Los Angeles

Foothill Transit is located in Los Angeles County

Year 1: 2017

Service of the electric buses will start in FY 2017.

Year F: 2029

The electric buses have a vehicle life of 12 years, as required by FTA.

Displaced Auto Details

Year 1 Annual Ridership: 88,175

Justification- As of June 2015 there was a total ridership of 72,656 and 103 trips. The new projection of 125 trips would yield an average of 88,175 riders annually.

Year F Annual Ridership: 88,175

Same ridership figures from year 1.

Adjustment (A): 0.50

Default value for local service. No project-specific data is available.

Length (L): 7.1.

According to Foothill Transit's most recent National Transit Database profile page, the average trip length is 7.1 miles. Note that the annual passenger miles is 99.3 million PMT, and the annual number of trips is 13.0 ULT. We calculate average trip length as PMT / ULT.

Adjustment (AA): 0.5

Default value for local service. No project-specific data is available.

Length (LL): 2

Default value for local service. No project-specific data is available.

Additional Project Type: Vehicle Improvement

In addition to expanding service, this project replaces CNG buses with electric buses.

New/Expanded Vehicle Details

Fuel Type: Electric/BEV or PHEV

As described in the project summary, this project replaces CNG buses with battery buses.

Engine MY: 2017

The electric buses will be deployed in 2017. The MY of the engine will be 2017.

Annual VMT: 418,600

The electric buses will complete 125 vehicle trips per day. When the electric buses are deployed, they will have a 1340 VMT per weekday, and 675 vehicle miles per weekend day. This is calculated through

HASTUS, the route scheduling management software used by Foothill Transit. The total annual vehicle miles (52 weeks * (1340*5+675+2)) is

Useful Life: 10

Default value for advanced technologies such as BEVs.

Old Service Vehicle

Additional Project: Vehicle Improvements

As described in the project description, this project replaces CNG buses with electric buses.

Fuel Type: CNG

As described in the project description, this project replaces CNG buses with electric buses.

Engine MY:2005

The vehicles being displaced are 12 years old (consistent with FTA guidelines of a useful bus life of 12 years). Since the electric buses will be deployed in 2017, the model year of the old vehicles will be 2005.

Annual VMT: 418,600

See the description above for "New / Expanded Vehicle Details", "Annual VMT".

Funds Requested

FY 2015-16 LCTOP Funds: \$512,738

See allocation request in project application.

Total LCTOP Funds: \$512,738

See allocation request in project application.

Total GGRF Funds: \$512,738

See allocation request in project application.

**Low Carbon Transit Operations Program (LCTOP)
AUTHORIZED AGENT**

AS the Executive Director of Foothill Transit:

I hereby authorize the following individual(s) to execute for and on behalf of the named Regional Entity/Transit Operator, any actions necessary for the purpose of obtaining Low Carbon Transit Operations Program (LCTOP) funds provided by the California Department of Transportation, Division of Rail and Mass Transportation. I understand that if there is a change in the authorized agent, the project sponsor must submit a new form. This form is required even when the authorized agent is the executive authority himself. I understand the Board must provide a resolution approving the Authorized Agent. The Board Resolution appointing the Authorized Agent is attached.

MICHELLE CALDWELL, DIRECTOR OF FINANCE AND TREASURER

OR

GIL VICTORIO, FINANCE MANAGER

DORAN BARNES

EXECUTIVE DIRECTOR

(Print Name)

(Title)

(Signature)

Approved this 24TH day of FEBRUARY, 2016

Low Carbon Transit Operations Program (LCTOP) CERTIFICATIONS AND ASSURANCES

Project Sponsor: Foothill Transit

Agency Name: Foothill Transit

Effective Date of this Document: 02/24/2016

The California Department of Transportation (Department) has adopted the following certifications and assurances for the Low Carbon Transit Operations Program. As a condition of the receipt of LCTOP funds, project lead must comply with these terms and conditions.

A. General

- (1) The project lead agrees to abide by the current LCTOP Guidelines and applicable legal requirements.
- (2) The project lead must submit to the Department a signed Authorized Agent form designating the representative who can submit documents on behalf of the project sponsor and a copy of the board resolution appointing the Authorized Agent.

B. Project Administration

- (1) The project lead certifies that required environmental documentation is complete before requesting an allocation of LCTOP funds. The project lead assures that projects approved for LCTOP funding comply with Public Resources Code § 21100 and § 21150.
- (2) The project lead certifies that a dedicated bank account for LCTOP funds only will be established within 30 days of receipt of LCTOP funds.
- (3) The project lead certifies that when LCTOP funds are used for a transit capital project, that the project will be completed and remain in operation for its useful life.
- (4) The project lead certifies that it has the legal, financial, and technical capacity to carry out the project, including the safety and security aspects of that project.
- (5) The project lead certifies that they will notify the Department of pending litigation, dispute, or negative audit findings related to the project, before receiving an allocation of funds.
- (6) The project lead must maintain satisfactory continuing control over the use of project equipment and facilities and will adequately maintain project equipment and facilities for the useful life of the project.
- (7) Any interest the project lead earns on LCTOP funds must be used only on approved LCTOP projects.
- (8) The project lead must notify the Department of any changes to the approved project with a Corrective Action Plan (CAP).
- (9) Under extraordinary circumstances, a project lead may terminate a project prior to completion. In the event the project lead terminates a project prior to completion, the project lead must (1) contact the Department in writing and follow-up with a phone call verifying receipt of such notice; (2) pursuant to

E. Record Retention

- (1) The project lead agrees, and will assure that its contractors and subcontractors shall establish and maintain an accounting system and records that properly accumulate and segregate incurred project costs and matching funds by line item for the project. The accounting system of the project lead, its contractors and all subcontractors shall conform to Generally Accepted Accounting Principles (GAAP), and enable the determination of incurred costs at interim points of completion. All accounting records and other supporting papers of the project lead, its contractors and subcontractors connected with LCTOP funding shall be maintained for a minimum of three (3) years after the "Project Closeout" report or final Phase 2 report is submitted (per ARB Funding Guidelines, Vol. 3, page 3.A-16), and shall be held open to inspection, copying, and audit by representatives of the State and the California State Auditor. Copies thereof will be furnished by the project lead, its contractors, and subcontractors upon receipt of any request made by the State or its agents. In conducting an audit of the costs claimed, the State will rely to the maximum extent possible on any prior audit of the project lead pursuant to the provisions of federal and State law. In the absence of such an audit, any acceptable audit work performed by the project lead's external and internal auditors may be relied upon and used by the State when planning and conducting additional audits.
- (2) For the purpose of determining compliance with Title 21, California Code of Regulations, Section 2500 et seq., when applicable, and other matters connected with the performance of the project lead's contracts with third parties pursuant to Government Code § 8546.7, the project sponsor, its contractors and subcontractors and the State shall each maintain and make available for inspection all books, documents, papers, accounting records, and other evidence pertaining to the performance of such contracts, including, but not limited to, the costs of administering those various contracts. All of the above referenced parties shall make such materials available at their respective offices at all reasonable times during the entire project period and for three (3) years from the date of final payment. The State, the California State Auditor, or any duly authorized representative of the State, shall each have access to any books, records, and documents that are pertinent to a project for audits, examinations, excerpts, and transactions, and the project lead shall furnish copies thereof if requested.
- (3) The project lead, its contractors and subcontractors will permit access to all records of employment, employment advertisements, employment application forms, and other pertinent data and records by the State Fair Employment Practices and Housing Commission, or any other agency of the State of California designated by the State, for the purpose of any investigation to ascertain compliance with this document.

F. Special Situations

The Department may perform an audit and/or request detailed project information of the project sponsor's LCTOP funded projects at the Department's discretion at any time prior to the completion of the LCTOP.

I certify all of these conditions will be met.

BY:



Doran Barnes, Executive Director
Foothill Transit



Foothill Transit
Going Good Places

RESOLUTION No. 2016-01

Authorization for the Execution of the Low Carbon Transit Operation Program (LCTOP) Project “Foothill Transit Line 280 Expansion and Electrification” in the Amount of \$512,738

WHEREAS, Foothill Transit is an eligible project sponsor and may receive state funding from the Low Carbon Transit Operations Program (LCTOP) for transit projects; and

WHEREAS, the statutes related to state-funded transit projects require a local or regional implementing agency to abide by various regulations; and

WHEREAS, Senate Bill 862 (2014) named the Department of Transportation (Department) as the administrative agency for the LCTOP; and

WHEREAS, the Department has developed guidelines for the purpose of administering and distributing LCTOP funds to eligible project sponsors (local agencies); and

WHEREAS, Foothill Transit wishes to implement the LCTOP project(s) listed above,

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Foothill Transit that the fund recipient agrees to comply with all conditions and requirements set forth in the applicable statutes, regulations and guidelines for all LCTOP funded transit projects.

NOW THEREFORE, BE IT RESOLVED by the Board of Directors of Foothill Transit that it hereby authorizes the submittal of the following project nomination(s) and allocation request(s) to the Department in FY 2015-16 LCTOP funds:

Project Name:

Foothill Transit Line 280 Expansion and Electrification

LCTOP funds requested:

\$512,738

Description:

The proposed project will support the expansion, maintenance and operation of Foothill Transit’s zero-emission electric buses servicing Line 280, which will connect disadvantaged communities in the San Gabriel Valley to the new Azusa Intermodal Transportation Center and Azusa Gold Line Station.

Adoption. PASSED AND ADOPTED at a meeting of the Executive Board held on January 15, 2016, by the following vote:

AYES: Member Warshaw, Member Calaycay, Member De La Torre, Vice Chair Shevlin, Chair Herrera


NOES:

ABSTAIN:



Carol Herrera, Chair

APPROVED AS TO FORM:
Darold D. Pieper, Attorney at Law

By: 
Darold Pieper, General Counsel

ATTEST:
Doran J. Barnes. Executive Director

By: 
Christina Lopez, Board Secretary